

WHAT IS CLAIMED IS:

1. An apparatus comprising:

a code strip carrier having a plurality of code tracks thereon;

5

an illumination system for illuminating said code tracks to generate a light signal from each code track, each code track comprising a plurality of dark and light stripes, said dark stripes generating a light signal having a lower intensity than the light signal generated by said light stripes;

10

a plurality of read heads, each read head comprising a photodetector positioned to detect light from a corresponding one of said code tracks as that code track moves relative to said read head;

15

a controller for generating an absolute position value related to the position of said code strip carrier relative to an origin position, wherein

20

one of said code tracks comprises a first absolute position track that provides an indication of said absolute position value when said code strip carrier is at each of a plurality of predetermined absolute positions relative to said origin position; and

25

a different one of said code tracks comprises an incremental position track for generating a digital value indicative of a displacement of said code strip carrier relative to the last predetermined absolute position.

30

2. The apparatus of Claim 1 wherein said first absolute position track comprises a plurality of unique code sequences distributed on said absolute position track, each code sequence indicating that one of said predetermined absolute positions has been passed when a predetermined stripe in that code sequence has passed said read head corresponding to said absolute position track.

3. The apparatus of Claim 1 wherein said incremental position track comprises alternating dark and light stripes and wherein said read head corresponding to said

incremental position track generates a first logic signal indicating the direction of travel of said code strip carrier relative to that read head and a second logic signal that changes state each time a boundary between a dark stripe and a light stripe passes under that read head.

5 4. The apparatus of Claim 1 wherein said code strip carrier comprises a reflective medium having a reflectivity that is altered by exposing said medium to light of an intensity greater than a predetermined intensity.

10 5. The apparatus of Claim 1 wherein one of said tracks comprises a state track that provides a state value corresponding to each of a plurality of said absolute position values and wherein said controller outputs said state value and said absolute position value.

15 6. A method for determining the position of a code strip carrier relative to a predetermined origin position, said method comprising:

providing a plurality of code tracks on said code strip carrier;

illuminating said code tracks to generate a light signal from each code track, each code track comprising a plurality of dark and light stripes, said dark stripes generating a light signal having a lower intensity than the light signal generated by said light stripes;

providing a plurality of read heads, each read head positioned to detect light from a corresponding one of said code tracks as that code track moves relative to said read head, said read head generating a signal indicative of the intensity of light reaching that read head;

25 generating an absolute position value related to the position of said code strip carrier relative to an origin position, wherein

30 one of said code tracks comprises a first absolute position track that provides an indication of said absolute position value when said code strip carrier is at each of a plurality of predetermined absolute positions relative to said origin position; and

a different one of said code tracks comprises an incremental position track for generating a digital value indicative of a displacement of said code strip carrier relative to the last predetermined absolute position.

5 7. The method of Claim 6 wherein said first absolute position track comprises a plurality of unique code sequences distributed on said absolute position track, each code sequence indicating that one of said predetermined absolute positions has been passed when a predetermined stripe in that code sequence has passed said read head corresponding to said absolute position track.

10 8. The method of Claim 6 wherein said incremental position track comprises alternating dark and light stripes and wherein said read head corresponding to said incremental position track generates a first logic signal indicating the direction of travel of said code strip carrier relative to that read head and a second logic signal that changes state 15 each time a boundary between a dark stripe and a light stripe passes under that read head.

9. The method of Claim 6 wherein said code strip carrier comprises a reflective medium having a reflectivity that is altered by exposing said medium to light of an intensity greater than a predetermined intensity.

20 10. The method of Claim 6 wherein one of said tracks comprises a state track that provides a state value corresponding to each of a plurality of said absolute position values and wherein said controller outputs said state value and said absolute position value.

25